Space Weather Forecast

Issued on Friday, 29 July 2022 at 01:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor Storm intervals days 2 and 3 (30th and 31st).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low over the past 24 hours, with no significant flares observed. There are currently three sunspot regions on the visible disc, all appear to be small and magnetically simple, with one region weakening and only barely visible.
No Earth-directed CMEs were observed, despite a small filament eruption that occurred from the southern hemisphere.

Solar Wind / Geomagnetic Activity: Solar winds were predominantly at background levels, between 350-400 km/s, with a temporary peak of 461 km/s at 28/0357 UTC. Density was mainly at average levels. The magnetic field of the solar wind was generally at moderate levels until the end of the period, then declined to weak levels. The important north-south component, fluctuated and was occasionally weakly negative. The resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain predominantly Very Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Solar winds are expected to be slow-ambient initially, before the arrival of an enhanced solar wind late on day 2 (30th), lifting solar winds to around 500km/s for days 3 and 4 (31st July and 1st July). Geomagnetic activity is forecast to be mainly Quiet with a chance of Unsettled intervals, then to become Unsettled and Active with a slight chance of Minor storm from late on day 2 (30th) into day 3 (31st).

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	30	20	5
Strong	G3	No	1	2	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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